**DNA**

Adaptations are:

Natural selection will allow:

How is it that these changes and adaptations can be passed on? What is responsible for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that we see is necessary for the change we see in creatures?

The traits of any individual are caused by the complex interactions happening inside of that being. Most of the chemical interactions inside the body are governed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Proteins are made within the body, and the blueprints for proteins are the \_\_\_\_\_\_\_\_\_\_.

**But first, Amino Acids!**

Amino acids are small chemicals in our bodies that often referred to as the “building blocks of life”. About \_\_\_\_ different kinds of amino acids and they can join together to make specific shapes that are proteins.

Amino acids make \_\_\_\_\_\_\_\_\_\_, proteins make \_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_ make \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ make \_\_\_\_\_\_\_\_\_\_\_, and ­­­­­­­­­­\_\_\_\_\_\_\_\_\_ make organisms.

One of DNA’s functions is to tell amino acids how to line up to form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ protein.

**DNA** (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_) when simplified may look something like a ladder.

The steps of a DNA “ladder” consist of four compounds that are called \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_:

When the nucleotides are hooked into a sequence, we get a short piece of DNA, it acts similar to a short word; **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** for example would be a short piece of information in DNA

Longer strands would make more complex instructions, like a collection of words can make a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A complete section of DNA is called a \_\_\_\_\_\_\_\_\_\_. A \_\_\_\_\_\_\_\_\_\_ has information on how and when a protein should be made.

DNA is located inside the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell. However amino acids will be in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell. So how would DNA communicate its information to where the amino acids are?

Special chemicals in the nucleus make \_\_\_\_\_\_\_\_\_\_\_ copies of the DNA code. These are called \_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_). \_\_\_\_\_\_\_\_ looks very similar to DNA, but it is shorter and is missing one half of the information.

The RNA can make its way to the ribosome, which makes proteins. The ribosome reads three RNA codes at a time, gets amino acids from the cytoplasm and begins making a chain of amino acids that will form a protein. Then the protein can be sent into the body to do any number of jobs, including making new cells.

**Analogy Time:**

You can think of DNA as an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: filled with information, but it stays in the library (nucleus).

The RNA would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of some necessary pages that you can take home and use.

The protein would then be the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**How DNA Passes Traits**

Children are made when the \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ from a mother and father meet. When the cells meet they bond the genes together and begin to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The process of cellular reproduction is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_. During meiosis, in the prophase, the different DNA strands will \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ each other and swap some of their genetic information. This “randomizes” some of the genes, causing the resultant DNA to have a mixture of genes, and thus traits, from each of the parents.